



- 136 -

TSRI 432.0

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: Maruyama, Ichiro  
Maruyama, Hiroko  
Brenner, Sydney
- (ii) TITLE OF INVENTION: LAMBDOID BACTERIOPHAGE VECTORS FOR  
EXPRESSION OF FOREIGN PROTEINS
- (iii) NUMBER OF SEQUENCES: 15
- (iv) CORRESPONDENCE ADDRESS:
  - (A) ADDRESSEE: The Scripps Research Institute, Office of  
Patent Counsel
  - (B) STREET: 10666 North Torrey Pines Road, TPC8
  - (C) CITY: La Jolla
  - (D) STATE: CA
  - (E) COUNTRY: USA
  - (F) ZIP: 92037
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Floppy disk
  - (B) COMPUTER: IBM PC compatible
  - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
  - (D) SOFTWARE: PatentIn Release #1.0, Version #1.25
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER: US 08/286,888
  - (B) FILING DATE: 05-AUG-1994
  - (C) CLASSIFICATION:
- (viii) ATTORNEY/AGENT INFORMATION:
  - (A) NAME: Fitting, Thomas
  - (B) REGISTRATION NUMBER: 34,163
  - (C) REFERENCE/DOCKET NUMBER: TSRI 432.0
- (ix) TELECOMMUNICATION INFORMATION:
  - (A) TELEPHONE: 619-554-2937
  - (B) TELEFAX: 619-554-6312

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 246 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Met Pro Val Pro Asn Pro Thr Met Pro Val Lys Gly Ala Gly Thr Thr  
1 5 10 15

Leu Trp Val Tyr Lys Gly Ser Gly Asp Pro Tyr Ala Asn Pro Leu Ser  
20 25 30

Asp Val Asp Trp Ser Arg Leu Ala Lys Val Lys Asp Leu Thr Pro Gly  
35 40 45

Glu Leu Thr Ala Glu Ser Tyr Asp Asp Ser Tyr Leu Asp Asp Glu Asp  
50 55 60

Ala Asp Trp Thr Ala Thr Gly Gln Gly Gln Lys Ser Ala Gly Asp Thr  
65 70 75 80

Ser Phe Thr Leu Ala Trp Met Pro Gly Glu Gln Gly Gln Gln Ala Leu  
85 90 95

Leu Ala Trp Phe Asn Glu Gly Asp Thr Arg Ala Tyr Lys Ile Arg Phe  
100 105 110

Pro Asn Gly Thr Val Asp Val Phe Arg Gly Trp Val Ser Ser Ile Gly  
115 120 125

Lys Ala Val Thr Ala Lys Glu Val Ile Thr Arg Thr Val Lys Val Thr  
130 135 140

Asn Val Gly Arg Pro Ser Met Ala Glu Asp Arg Ser Thr Val Thr Ala  
145 150 155 160

Ala Thr Gly Met Thr Val Thr Pro Ala Ser Thr Ser Val Val Lys Gly  
165 170 175

Gln Ser Thr Thr Leu Thr Val Ala Phe Gln Pro Glu Gly Val Thr Asp  
180 185 190

Lys Ser Phe Arg Ala Val Ser Ala Asp Lys Thr Lys Ala Thr Val Ser  
195 200 205

Val Ser Gly Met Thr Ile Thr Val Asn Gly Val Ala Ala Gly Lys Val  
210 215 220

Asn Ile Pro Val Val Ser Gly Asn Gly Glu Phe Ala Ala Val Ala Glu  
225 230 235 240

Ile Thr Val Thr Ala Ser  
245

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 21 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

AGTGTGGAGC TCTACCCTTT C

21

(2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 24 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

CGCCTGTAAT AAGCGGCCGC AGCT

24

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

GCGGCCGCTT ATTACAGG

18

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 910 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

AAATGTGAGG ACGCTATGCC TGTACCAAAT CCTACAATGC CGGTGAAAGG	50
TGCCGGGACC ACCCTGTGGG TTTATAAGGG GAGCGGTGAC CCTTACGCGA	100
ATCCGCTTTC AGACGTTGAC TGGTGCGGTC TGGCAAAAGT TAAAGACCTG	150
ACGCCCCGGCG AACTGACCGC TGAGTCCTAT GACGACAGCT ATCTCGATGA	200
TGAAGATGCA GACTGGACTG CGACCGGGCA GGGGCAGAAA TCTGCCGGAG	250
ATACCAGCTT CACGCTGGCG TGGATGCCCC GAGAGCAGGG GCAGCAGGCG	300
CTGCTGGCGT GGTTTAATGA AGGCGATACC CGTGCTATA AAATCCGCTT	350
CCCGAACGGC ACGGTCGATG TGTTCCGTGG CTGGGTCAGC AGTATCGGTA	400
AGGCGGTGAC GGCGAAGGAA GTGATCACCC GCACGGTGAA AGTCACCAAT	450
GTGGGACGTC CGTCGATGGC AGAAGATCGC AGCACGGTAA CAGCGGCAAC	500
CGGCATGACC GTGACGCCTG CCAGCACCTC GGTGGTGAAA GGGTAGAGCT	550
GGCCTGTTAG GCCCACTCCG ACCCGACCA CTCCCACCCC GACTCCCACC	600
CCGACCCCGA CCCCAGCTCC GACCGTTGGG CCAATTGTCA CACAGGAAAC	650

```

AGCTATGACC ATGATTACGC CAAGCTTGCA TGCCTGCAGG TCGACTCTAG    700
AGGATCCCCG GGTACCGAGC TCGAATTCAC TGGCCGTCGT TTTACAACGT    750
CGTGA CTGGG AAAACCCTGG CGTTACCCAA CTTAATCGCC TTGCAGCACA    800
TCCCCCTTTC GCCAGCTGGC GTAATAGCGA AGAGGCCCGC ACCGATCGCC    850
CTTCCCAACA GTTGCGCAGC CTGAATGGCG AATGGCGCCT GTAATAAGCG    900
GCCGCAGCTC                                           910

```

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 293 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(ix) FEATURE:

- (A) NAME/KEY: peptide
- (B) LOCATION: 177
- (C) OTHER INFORMATION: /label= Xaa  
/note= "Wherein Xaa is a suppressor termination codon"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

```

Met Pro Val Pro Asn Pro Thr Met Pro Val Lys Gly Ala Gly Thr Thr
 1             5             10             15
Leu Trp Val Tyr Lys Gly Ser Gly Asp Pro Tyr Ala Asn Pro Leu Ser
          20             25             30
Asp Val Asp Trp Ser Arg Leu Ala Lys Val Lys Asp Leu Thr Pro Gly
          35             40             45
Glu Leu Thr Ala Glu Ser Tyr Asp Asp Ser Tyr Leu Asp Asp Glu Asp
          50             55             60
Ala Asp Trp Thr Ala Thr Gly Gln Gly Gln Lys Ser Ala Gly Asp Thr
          65             70             75             80
Ser Phe Thr Leu Ala Trp Met Pro Gly Glu Gln Gly Gln Gln Ala Leu
          85             90             95

```

Leu	Ala	Trp	Phe	Asn	Glu	Gly	Asp	Thr	Arg	Ala	Tyr	Lys	Ile	Arg	Phe
			100					105					110		
Pro	Asn	Gly	Thr	Val	Asp	Val	Phe	Arg	Gly	Trp	Val	Ser	Ser	Ile	Gly
		115					120					125			
Lys	Ala	Val	Thr	Ala	Lys	Glu	Val	Ile	Thr	Arg	Thr	Val	Lys	Val	Thr
		130				135					140				
Asn	Val	Gly	Arg	Pro	Ser	Met	Ala	Glu	Asp	Arg	Ser	Thr	Val	Thr	Ala
		145				150				155					160
Ala	Thr	Gly	Met	Thr	Val	Thr	Pro	Ala	Ser	Thr	Ser	Val	Val	Lys	Gly
			165						170					175	
Xaa	Ser	Trp	Pro	Val	Arg	Pro	Thr	Pro	Thr	Pro	Thr	Thr	Pro	Thr	Pro
			180					185					190		
Thr	Pro	Thr	Pro	Thr	Pro	Thr	Pro	Thr	Pro	Thr	Val	Gly	Pro	Ile	Val
			195					200				205			
Thr	Gln	Glu	Thr	Ala	Met	Thr	Met	Ile	Thr	Pro	Ser	Leu	His	Ala	Cys
		210				215					220				
Arg	Ser	Thr	Leu	Glu	Asp	Pro	Arg	Val	Pro	Ser	Ser	Asn	Ser	Leu	Ala
		225			230					235					240
Val	Val	Leu	Gln	Arg	Arg	Asp	Trp	Glu	Asn	Pro	Gly	Val	Thr	Gln	Leu
			245						250					255	
Asn	Arg	Leu	Ala	Ala	His	Pro	Pro	Phe	Ala	Ser	Trp	Arg	Asn	Ser	Glu
			260					265					270		
Glu	Ala	Arg	Thr	Asp	Arg	Pro	Ser	Gln	Gln	Leu	Arg	Ser	Leu	Asn	Gly
		275					280					285			
Glu	Trp	Arg	Leu	*											
			290												

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

GTCTGCAGCA CAAGCTCAAC CTTA

24

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

GAGAATTCTT TACATACTGG AATAAGAG

28

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Val Val Lys Gly  
1

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

GTGGTGAAAG GGTAGAGCTC CACACTG

27

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 27 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

CAGTGTGGAG CTCTACCCTT TCACCAC

27

(2) INFORMATION FOR SEQ ID NO:12:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 12 amino acids
  - (B) TYPE: amino acid
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Ser	Ser	Ser	Leu	Asp	Pro	Gly	Pro	Ser	Thr	Asn	Ser
1				5					10		

(2) INFORMATION FOR SEQ ID NO:13:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 41 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

GGGTAGAGCT CAAGCTTGGA TCCGGGCCCG TCGACGAATT C

41

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 38 amino acids



(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Ser Trp Pro Val Gly Pro Ile Val Thr Gln Glu Thr Ala Met Thr Met  
1 5 10 15

Ile Thr Pro Ser Leu His Ala Cys Arg Ser Thr Leu Glu Asp Pro Arg  
20 25 30

Val Pro Ser Ser Asn Ser  
35

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 119 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

GGGTAGAGCT GGCCTGTTGG GCCAATTGTC ACACAGGAAA CAGCTATGAC CATGATTACG 60  
CCAAGCTTGC ATGCCTGCAG GTCGACTCTA GAGGATCCCC GGGTACCGAG CTCGAATTC 119